each offset planar surface has a flat, smooth surface.

REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on April 25, 2002, and the references cited therewith. Claims 39 and 41 are amended such that claims 11-25 and 35-43 are now pending in this application.

§102 Rejection of the Claims

Claims 11-25 and 35-43 were rejected under 35 USC § 102(b) as being anticipated by Ormond et al. (U.S. Patent No. 5,128,282). Applicant respectfully traverses the rejection. "For a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference." (emphasis added). *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990). "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claims 11-14

Applicant cannot find in Ormond "one or more perimeter side surfaces extending between the first planar surface and the second planar surface" as recited in claims 11. Applicant respectfully traverses the assertion at page 2 of the Office Action that each "semiconductor die taught by Ormond et al., like applicant, is shaped in a particular way such that die edges are not chipped or cracked or damaged [compare applicant's page 6, lines 6-19 with Ormond et al.'s, col. 4, lines 57-68]." Unless relying on hindsight reconstruction, the Office Action appears to be taking Official Notice of facts not supported by Ormond. Applicant traverses the Official Notice and respectfully requests a patent under MPEP § 2144.03 to support the assertion, or in the alternative, withdrawal of this assertion from the rejection.

Ormond appears to disclose using a dicing blade 60 to form edges 11 that intersect the sidewalls 35, 36 of grooves 33, 34. The edges 11 do not appear to extend from active surface 23 to inactive surface 24 (see FIGS. 4 and 5, col. 4, lines 46-56 and col. 5, lines 13-22). It is unclear

how Ormond teaches, among other things, ground or polished side surfaces that extend between the first planar surface and the second planar surface as recited in claim 11. By failing to teach such structure, Mori does not meet the standard set forth in *In re Bond* requiring that "every element of the claimed invention must be identically shown in a single reference." 910 F.2d at 831, 15 USPQ2d at 1566, 1567.

Claims 12 -14 depend from claim 11 such that they incorporate all of the limitations of claim 11. Therefore, Applicant respectfully requests allowance of claims 11-14 for the reasons provided above with regard to claims 11.

Furthermore, Applicant cannot find in Ormond "wherein the perimeter surface has a ground surface" as recited in claim 14. Applicant respectfully traverses the assertion that "a high-speed diamond dicing blade inherently 'grinds' away 'scribe material' such that the ground edge is 'substantially smooth and flat'." Page 3, Office Action. Unless relying on hindsight reconstruction, the Office Action appears to be taking Official Notice of facts not supported by Ormond. Applicant respectfully traverses this Official Notice and requests the Examiner to either 1.) cite references in support of this position pursuant to M.P.E.P. § 2144.03, or 2.) submit an affidavit as required by 37 C.F.R. § 1.104(d)(2) to support his position.

The Office Action appears to admit that Ormond does not teach a ground surface. But, the Office Action maintained that this is inherent in Ormond because high speed dicing blade 60 inherently grinds away scribe material. Applicant respectfully disagrees because the Office Action has not established a *prima facie* case of inherency because, as recited in MPEP § 2112, "In relying upon the theory of inherency, the examiner must provide basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art," citing Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). The Office Action only argued that in Ormond a high speed dicing blade 60 inherently grinds away scribe material.

Applicant respectfully submits that "wherein the perimeter surface has a ground surface" does not necessarily flow from Ormond because a ground surface is not the same as a surface exposed by cutting. To serve as an anticipation when a reference is silent about the asserted inherent characteristic, the gap in the reference may be filled with recourse to extrinsic evidence.

But, such evidence must make clear that "the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co. v. Monsanto Co.*, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). Applicant respectfully submits that the Examiner has not produced extrinsic evidence to show that the element "wherein the perimeter surface has a ground surface" as recited in claim 14 is necessarily present in Ormond.

Reconsideration and allowance of claims 11-14 is again respectfully requested.

Claims 15-17

Applicant incorporates the above discussion of Ormond herein. Applicant cannot find in Ormond "one or more perimeter side surfaces extending between the first planar surface and the second planar surface" as recited in claim 15. Claims 16 and 17 depend from claim 15 such that they incorporate all of the limitations of claim 15. Therefore, Applicant respectfully requests allowance of claims 15-17 for the reasons provided above with regard to claims 15.

With regard to claim 16, Applicant cannot find in Ormond "wherein each entire side surface comprises a ground surface" as recited in claim 16.

With regard to claim 17, Applicant cannot find in Ormond "wherein the entire side surface comprises a polished surface" as recited in claim 17. Applicant respectfully traverses the assertion that it " is advantageous to treat groove 40 with an anisotropic etchant which is inherently a form of chemical 'polishing' *inherently* resulting in each edge having a 'polished' perimeter side surface [col. 5, lines 52-55]." Page 3, Office Action. Unless relying on hindsight reconstruction, the Office Action appears to be taking Official Notice of facts not supported by Ormond. Applicant respectfully traverses this Official Notice and requests the Examiner to either 1.) cite references in support of this position pursuant to M.P.E.P. § 2144.03, or 2.) submit an affidavit as required by 37 C.F.R. § 1.104(d)(2) to support his position.

FIG. 5 of Ormond appears to show that only a portion of the die's side surface is formed by groove 40. The dicing blade 60 cuts through tab 15 to form die 5 (see col. 6, lines 27-28) such that the entire side surface appears to at least partially include a surface exposed by cutting instead of polished surfaces as recited in claim 17.

Reconsideration and allowance of claims 15-17 is respectfully requested.

Claims 18-21

Applicant incorporates the above discussion of Ormond herein. Applicant cannot find in Ormond "one or more perimeter side surfaces extending between the first planar surface and the second planar surface" as recited in claim 18. Claims 19-21 depend from claim 18 such that they incorporate all of the limitations of claim 18. Therefore, Applicant respectfully requests allowance of claims 18-21 for the reasons provided above with regard to claims 18.

Claims 22-24

Applicant incorporates the above discussion of Ormond herein. Applicant cannot find in Ormond "one or more perimeter side surfaces extending between the first planar surface and the second planar surface" as recited in claim 22. Claims 23 and 24 depend from claim 22 such that they incorporate all of the limitations of claim 22. Therefore, Applicant respectfully requests allowance of claims 22-24 for the reasons provided above with regard to claims 22.

Applicant respectfully traverses the assertion that "regarding claim 22, the 'means' recited in the claim does not distinguish from any prior art semiconductor die since the mere 'existence of a die' is a 'means' to polish it [See MPEP 2113]. Page 4, Office Action. Unless relying on hindsight reconstruction, the Office Action appears to be taking Official Notice of facts not supported by Ormond. Applicant respectfully traverses this Official Notice and requests the Examiner to either 1.) cite references in support of this position pursuant to M.P.E.P. § 2144.03, or 2.) submit an affidavit as required by 37 C.F.R. § 1.104(d)(2) to support his position.

Reconsideration and allowance of claim 22-24 is respectfully requested.

Claim 25

Applicant incorporates the above discussion of Ormond herein. Applicant cannot find in Ormond "one or more perimeter side surfaces extending between the first planar surface and the second planar surface" as recited in claim 25.

Applicant also can not find in Ormond where "each perimeter side surface having offset perimeter planar surfaces, where the perimeter planar surfaces are substantially parallel to each other, and the perimeter planar surfaces are treated, substantially smooth surfaces" as recited in claim 25. It appears to Applicant that in Ormond, the wafer is diced using a dicing blade 60. Ormond, col. 4, lines 42-43. Applicant further notes dicing blade 60 is used in every embodiment disclosed in Ormond. Applicant respectfully submits that a treated surface is not identical to a surface that has been exposed by cutting with a saw blade. Ormond at col. 5, lines 15-19 recognizes that flaws exist in a surface exposed by cutting. Unless relying on hindsight reconstruction, the Office Action appears to be taking Official Notice of facts not supported by Ormond. Applicant traverses the Official Notice and respectfully requests a patent under MPEP § 2144.03 to support the assertion, or in the alternative, withdrawal of the assertions from the rejection.

Reconsideration and allowance of claim 25 is respectfully requested.

Claims 35-40

Applicant incorporates the above discussion of Ormond herein. Applicant cannot find in Ormond "one or more perimeter side surfaces extending between the first planar surface and the second planar surface" as recited in claim 35. Claims 36-40 depend from claim 35 such that they incorporate all of the limitations of claim 55. Therefore, Applicant respectfully requests allowance of claims 35-40 for the reasons provided above with regard to claim 35.

With regard to claim 38, Applicant cannot find in Ormond "wherein the planar perimeter surfaces have ground surfaces." as recited in claim 38. Applicant respectfully submits that Ormond does not teach or suggest a ground surface because as stated previously a ground surface is not the same as a surface exposed by cutting.

With regard to amended claim 39, Applicant cannot find in Ormond "wherein each of the planar perimeter surfaces have polished surfaces" as recited in amended claim 39. The die's side surfaces in FIG. 5 of Ormond appears to show that only a portion of the side surfaces are formed by groove 40. The dicing blade 60 cuts through tab 15 to form die 5 such that each of the planar perimeter surfaces does not comprise a polished surface as recited in amended claim 39.

Reconsideration and allowance of claims 35-40 is respectfully requested.

Claims 41-43

Applicant incorporates the above discussion of Ormond herein. Applicant cannot find in Ormond "one or more perimeter edges transverse to and extending between the first planar surface and the second planar surface" as recited in claim 41. As discussed above, it is unclear how Ormond teaches, among other things, a side surface that extends between the first planar surface and the second planar surface as recited in claim 11. By failing to teach such structure, Mori does not meet the standard set forth in *In re Bond* requiring that "every element of the claimed invention must be identically shown in a single reference." 910 F.2d at 831, 15 USPQ2d at 1566, 1567.

Claims 42 and 43 depend from claim 41 such that they incorporate all of the limitations of claim 41. Therefore, Applicant respectfully requests allowance of claims 41-43 for the reasons provided above with regard to claims 41.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (262) 646-7009 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date June 25, 2002 By _____
Catherine I. Klima-Silberg
Reg. No. 40,052

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Box AF, Commissioner of Patents, Washington, D.C. 20231, on this 25 day of June, 2002.

Tina Kobat
Name

_____
Signature

CLEAN VERSION OF PENDING CLAIMS

GRINDING TECHNIQUE FOR INTEGRATED CIRCUITS
Applicant: Aaron M. Schoenfeld
Serial No.: 09/785,006

Claims 11-25 and 35-43, as of June 24, 2002 (Date of Response to Final Office Action).

11. A semiconductor die comprising:

a first planar surface having circuitry thereon;

a second planar surface opposite the first planar surface;

one or more perimeter side surfaces extending between the first planar surface and the second planar surface;

a layer of scribe material forming the perimeter side surfaces, the layer of scribe material surrounding the circuitry; and

at least a portion of at least one perimeter side surface of the semiconductor die having a substantially flat, smooth surface.

12. The semiconductor die as recited in claim 11, wherein each perimeter surface has an entirely flat, smooth surface.

13. The semiconductor die as recited in claim 11, wherein the semiconductor die has a substantially rectangular shape.

14. The semiconductor die as recited in claim 11, wherein the perimeter surface has a ground surface.

15. A semiconductor die comprising:

a first planar surface having circuitry thereon;

a second planar surface opposite the first planar surface;

one or more perimeter side surfaces extending between the first planar surface and the second planar surface; and

at least one perimeter surface having a treated surface, the entire at least one perimeter side surface having a substantially smooth surface;

a layer of scribe material forming the perimeter side surfaces, the layer of scribe material surrounding the circuitry; and

the first planar surface and the second planar surface of the semiconductor die have an overall rectangular shape.

16. The semiconductor die as recited in claim 15, wherein each entire side surface comprises a ground surface.

17. The semiconductor die as recited in claim 15, wherein the entire side surface comprises a polished surface.

18. A semiconductor die comprising:

a first planar surface having circuitry thereon;

a second planar surface opposite the first planar surface;

one or more perimeter side surfaces extending between the first planar surface and the second planar surface; and

at least one perimeter side surface having at least two offset planar surfaces, where the offset planar surfaces are substantially parallel to each other, where at least one of the two offset planar surfaces of at least one perimeter side surface are substantially flat and smooth.

19. The semiconductor die as recited in claim 18, wherein the semiconductor die comprises a rectangular die.

20. The semiconductor die as recited in claim 18, wherein each perimeter side surface has offset planar surfaces.

21. The semiconductor die as recited in claim 18, wherein each offset planar surfaces is substantially smooth and flat.

22. A semiconductor die comprising:

a first planar surface having circuitry thereon;

a second planar surface opposite the first planar surface;

one or more perimeter side surfaces extending between the first planar surface and the second planar surface;

a layer of scribe material forming the perimeter side surfaces, the layer of scribe material surrounding the circuitry; and

means for treating one or more of the perimeter side surfaces of the semiconductor die to provide one or more of the perimeter side surfaces with one or more substantially treated, and smooth surfaces.

23. The semiconductor die as recited in claim 22, wherein the entire perimeter side surface is a substantially smooth surface.

24. The semiconductor die as recited in claim 22, wherein the at least one perimeter side surface has offset planar surfaces, where the planar surfaces are each substantially smooth and are substantially parallel to each other.

25. A semiconductor die comprising:

a first planar surface having circuitry thereon;

a second planar surface opposite the first planar surface;

one or more perimeter side surfaces extending between the first planar surface and the second planar surface;

each perimeter side surface having offset perimeter planar surfaces, where the perimeter planar surfaces are substantially parallel to each other, and the perimeter planar surfaces are treated, substantially smooth surfaces;

a layer of scribe material forming the perimeter side surfaces, the layer of scribe material surrounding the circuitry; and

the semiconductor die has an overall rectangular footprint.

35. A semiconductor die comprising:

a first planar surface having circuitry thereon;

a second planar surface opposite the first planar surface;

one or more perimeter side surfaces extending between the first planar surface and the second planar surface; and

at least one perimeter side surface having two or more offset planar perimeter surfaces, at least one perimeter side surface having a treated, substantially smooth surface, where the planar perimeter surfaces are substantially transverse to the first planar surface and the second planar surface.

36. The semiconductor die as recited in claim 35, wherein each planar perimeter surface has an entirely flat, smooth surface.

37. The semiconductor die as recited in claim 35, wherein the semiconductor die has a substantially rectangular shape.

38. The semiconductor die as recited in claim 35, wherein the planar perimeter surfaces have ground surfaces.

39. (Twice Amended) The semiconductor die as recited in claim 35, wherein each of the planar perimeter surfaces have polished surfaces.

40. The semiconductor die as recited in claim 35, wherein the planar perimeter surfaces are substantially parallel to one another.

41. (Amended) A semiconductor die comprising:

a first planar surface;

a second planar surface opposite the first planar surface;

one or more perimeter edges transverse to and extending between the first planar surface and the second planar surface; and

at least one perimeter edge having two or more offset planar surfaces, where the offset planar surfaces are substantially transverse to the first planar surface or the second planar surface; and

each offset planar surface has a flat, smooth surface.

42. The semiconductor die as recited in claim 41, wherein the semiconductor die comprises a rectangular die.

43. The semiconductor die as recited in claim 41, wherein the offset planar surfaces are substantially parallel to one another.